

Schoolyard Birding Safari - an Environmental Barometer

Grades: 4th-8th

Goals:

To help students understand and appreciate that wildlife has value ecologically and scientifically.

Objectives:

Students will be able to identify 15 basic backyard bird species.

Students will use a field guide (the basic tool of outdoor study) to identify birds that they encounter in the school yard.

Students will discuss why birds are or are not present.

Students will consider ways in which the presence of wildlife can be seen as an indicator of birds can be see as an environmental quality.

Students will identify the four basic needs of wildlife habitat as food, water, shelter and space.

Introduction

Years ago, canaries were used in coal mines to warn of impending danger. The canaries were more sensitive to lack of oxygen and an increase in carbon monoxide than the miners. If the canaries began to collapse and die, the miners found the cause of the deadly gas or quickly retreated from the mine shafts.

The Silent Spring of the sixties, was another time when the absence of song birds, was the wake-up call to us humans that we were in danger. This time the "poison" killing the birds was DDT a "miracle bug killer" sprayed widely across the US. It first entered the food chain through insects and insect predators, and then was "washed" into the food chains of the fish in our lakes. It then began showing up as thin egg shells in fish predators and resulted in the endangerment of birds of prey, like the bald eagle, and as a Great Lakes Fish Advisory for humans today (females are recommended not to eat more than one meal of Great Lakes fish a month to prevent birth defects in future children).

Wildlife serve as an important indicator of the overall health of an area of the environment. If there are few wild animals-- or little evidence of wildlife--present in an area, it is likely that there is little available food, water or shelter in the area as well. Some species of animals are more adaptable to difficult conditions--they are tolerant of the conditions that threaten survival to others. Some in contrast are so specialized that it is quite difficult for them to find the food, water, shelter and other things that they need--they are intolerant of changes to the land often caused by humans.

Even if food, water, shelter and space are available, they many not be suitably arranged to meet the needs of wildlife. The kinds of wildlife present are also important indicators. Birds of prey, for example, are high on the food chain. If they are present in an area, that is an indicator that their prey is present too.

We know that different species of bird life require different habitat. This knowledge should enable us to measure our local natural environment by the number of different kinds of birds we see near our homes. If only a few kinds of "Tolerant" birds are observed, natural habitat must be limited. If a variety of birds are seen, "Tolerant" and "Intolerant" alike, then the environment is more natural and complete.

The major purpose of this activity is for students to consider the importance of wildlife as an indicator of environmental quality.

Program

1. Discuss the diversity of bird life. Review the adaptations which make birds a unique class of vertebrates: Warm Blooded, Wings, Feathers, Scales on their legs and toes, they lay hard shelled eggs, and feed their young regurgitated macroinvertebrates.

2. Discuss the fact that most people would agree that an environment that provides for a variety of birds (a more natural and complete environment) is also more desirable for humans.

- Talk about the kinds of birds found in highly urbanized or developed environments - Pigeons, Sparrows, Starlings, why are they the only ones found in these concrete areas? Because these birds can survive on the food, water, shelter and protection provided by a concrete city environment, they are "adaptable" and "tolerant"
- Talk about the kinds of birds found in a natural area such as the nearest state park, forest or wildlife area to your school---orioles, warblers, thrushes, woodpeckers require a variety of vegetation and other conditions for survival. They are sometimes "intolerant" of changes brought by development and are unable to "adapt" to the urban setting and so are not present.
- Note that "backyard" bird life can be limited, even in rural areas, due to the lack of food and shelter. A home without landscaping and plantings in the middle of a field is an good example, so is a sugar beet field in the spring.
Discuss why the environment which supports diverse bird life is a more desirable environment for humans.

3. Hand out the "Guide for Classifying Your Natural Environmental Quality" (taken from the MSU Extension Bulletin E-707, Feb. 77). Give the students time to look up and become familiar with the birds listed on the sheet using various field guides, from the library. They don't need to necessarily be able to identify each one, this is just an exercise that will help them see how a field guide is arranged, what information is available and it gives them an opportunity to confirm that they do recognize some species of birds). You will need enough field guides to have at least one for every 2-4 students.

4. Discuss the hand out. it is a very simple guide for classifying the natural Environmental Quality of your location in Michigan as poor, fair, good or excellent. To use this "guide", it will be necessary to spend some time observing you "neighborhood" bird life "hunting" the school yard for signs of bird life. The field guide will help, so will a pair of binoculars (optional). (Inexpensive, but useful ones, (\$20) can be purchased at local super stores).

5. Would like extra help for younger student?...contact the local Audubon Society, Garden Club or birding supply store (Wild Birds Unlimited is a chain that is found in several larger cities across the state) to see if they have volunteers who might be able to assist your students when they go out to "Bird Hunt" in the school yard.

6. Ahead of time number stations in the school yard for each team of "ecologists" (an ecologist is someone who studies the relationships between the living factors and the non-living factors in an environment). Take your class outside and designate each team's station in the school yard. Instruct them to stay at that location for 10 minutes or until they have heard the whistle, bell or horn that you will blow. At that time they will walk to the next station. Repeat for 3 or 4 rotations, giving each team an opportunity to observe in more than one locations. Have the students record each species of bird sighted in the school yard. You may instruct them to use the attached record sheet, which also gathers other observation data, i.e. first thing you noticed about the bird, outstanding markings or colors, approximate size, shape of beak, where the bird was seen at. If they are unable to identify a bird just list the bird by the number that he was sighted as, i.e. #7 - long square cut tail, crest on head, gray color, size in between sparrow and robin, short black beak, on a tree branch.

7. Inside the classroom have the either together or in their teams, transfer their bird sightings to the MSU Bulletin "Guide for Classifying Your Natural Environmental Quality". List the birds in the right-hand column, in sequence that you spotted them (1,2,3), regardless of the location of the species in the center column. If, for example, a bluejay is the first bird observed, list it in the first blank, etc. The scale is based on the NUMBER of DIFFERENT species observed.

8. Have the students rate the quality of the school yard environment, using the number index on the "Guide", i.e. 1-5 birds- Poor Quality, 6-10 birds---Fair Quality, 11-15 bird--- Good Quality, 16-23 birds Excellent Quality. How did your school yard rate? Compile the rating from each team. Determine the overall class Environmental Quality rating for your school yard.

9. Discuss environmental factors that may have entered into your survey results:What kinds of food, water, shelter and space were in the schoolyard setting to support the survival needs of the birds? If there were few birds, or many, in either setting--what might this tell us about the quality of the environment? What is environmental quality? Can wildlife be an indicator of environmental quality? Talk about whether it is realistic for every environment to be a good habitat for varieties of birds. Discuss the possibility

and appropriateness of making efforts to improve environments as habitats for wildlife and homes for people too.

11. The following is a list of reason why bird life is attracted to a space. Put the list on a chart and as a class, check the reasons why bird life is attracted to your schoolyard:

- Migration
- Just Passing Through
- Bird Feeder
- Bird Bath

- Bird House
- Brush Piles
- Creek, Ditch, River, Lake or Pond
- Natural Food Available
- Adequate cover (protection from weather & predators - shrubs, evergreens, trees, tall grass, flowers, etc)
- Natural Nesting Sites Available
- Protection from Abnormal Predation

The above checklist progresses from the simplest, and most artificial causes for bird life attraction to the most complete, natural conditions for attracting birds. If you weren't able to check the last half of the list, your bird life habitat is considerably limited. Bird feeders are poor substitutes for a good natural habitat. To have a continuous bird population (permanent bird residents), it is necessary to have a constant supply of "natural" food and adequate cover for protection and nesting sites.

10. Conclusion: Discuss what might be done to improve the environmental quality of your schoolyard.

To increase the number of permanent bird life species in your schoolyard, find a good book on birds at the library and probe the needs of each bird listed. Discover where blue jays go at night, or the natural habitat of the chickadee. To attract other birds, determine their natural habitat and then try to duplicate it on your school yard grounds. The DNR website has many tips to help improve habitat for many species of birds and other animals.

If your school is located in the heart of a large city, it is going to be difficult to attract a variety of birds. Community effort directed at creating open space and green, planted areas, through building razing, green ways renovation, clean-up, etc, is one way to do it. Developing and maintaining corridors of green vegetation leading into the city with green belts circling the city will encourage bird life. Replanting trees and shrubs along city streets has been neglected in most communities in recent years. Street improvements, disease, and insects have ruined some of our tree lined streets. The demise of our trees has removed birds, making replanting even more important.

While some forms of bird life can be attracted almost overnight by planting groundcover and shrubs, other birds require habitat that must be developed over a period of several years. This is why it is important to "plan with nature" when changing the use of the land, rather than clearing off all vegetation and "starting from scratch".

For those who want to encourage bird life in their own backyard, check out these resources:

MSU Kellogg Bird Sanctuary
www.michigan.gov/dnr
Your local MSU County Extension Service

Extension:

Have your students, as part of a homework assignment, go home and conduct the same survey of their own back yard. Did they get the same results? Why or why not?

Take a field trip to a local natural area, state park, state forest, wildlife area, etc. and conduct the same survey. Are there more birds apparent in those areas where there is natural habitat? If yes, what seems to be the contributing factors? If no, what seem to be the contributing factors?

Evaluation:

1. Each year, thousands of birdwatchers participate in a National Audubon Society bird count all over the US. The information is kept and compared from year to year to see if changes occur in the total number of birds or in how many different kinds of birds are sighted. If a steady and long decrease in bird populations occurred over a period of ten years, should everyone be concerned---not just the birdwatchers? Explain your response.

2. Brainstorm a list of things that we are doing to the land (or ways that we are using the land) in our community that tend to change or disturb the natural environment. Next go through the list and put a "D" beside the things that tend to decrease the number of birds and wildlife that can live there and a "I" by the things that tend to increase the number of birds and wildlife that can live there.

3. List three ways people can improve backyard habitat for wildlife.

Acknowledgements:

Birdlife: an Indicator of Environmental Quality Michigan State University Extension
Bulletin E-707, Feb. '77; Project Wild